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COMPREHENSIVE PLANNING AND RESILIENCE:
A STUDY OF LOUISIANA PARISHES AFTER HURRICANE KATRINA

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

in

The Department of Environmental Sciences

By
Mary Paille
B.L.A., Louisiana State University, 2007
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ABSTRACT

When hurricanes Katrina and Rita hit in 2005, widespread devastation was felt in over half of the parishes in the state. More than 200,000 homes were damaged and more than 1500 people lost their lives. During this transitional period, communities were vulnerable and looked for rebuilding leadership. As part of a post-catastrophe resilience movement, the Louisiana Recovery Authority formulated a 50-year regional plan for recovering south Louisiana called Louisiana Speaks. This planning process opened up an opportunity to reach those communities that otherwise may not have considered planning or how it could help them prepare for future events.

This places Louisiana in a unique position to study how these events may have affected planning and resilience objectives in parishes throughout the state. In this thesis the following questions are examined:

1. Has there been any change in the number of plans adopted following the active hurricane seasons of 2005 and 2008?
2. What factors are associated with levels of planning in Louisiana at the parish scale since 2005?
3. Has there been more attention to resilience in planning since 2005?

These questions were examined by sending out a survey to all parish planning departments or parish administration. The responses, combined with demographic data such as parish density, population change, education level, and median income, showed that there are more comprehensive plans adopted per year now than there were prior to 2005. The research also showed that more rural parishes are adopting comprehensive planning as a way to preserve their

rural character against future growth. Parishes are also moving towards resilience planning, as a way to combine land use planning with tools to protect their parish from future natural disasters. This research shows that framing comprehensive planning as resilience planning may have more impact in Louisiana than it would have prior to 2005.

CHAPTER 1: INTRODUCTION

Comprehensive planning in the United States is not a new concept, but has roots in the early 20th century as cities began to expand and the population of the country began to grow. It was used as a tool to map cities and towns such as Venice, Florida by landscape architect John Nolan and the renowned Riverside by Frederick Law Olmstead (Birnbaum, 2000). Today, planning is used not only to create, but to preserve and protect. It has broadened since its inception and now employs multiple disciplines and experts throughout the sciences and arts.

Comprehensive planning is frequently a reactive approach to population growth (Lubell, 2009). Planners are tasked with remediating what has already been done through sprawl, environmental destruction, and rapid building. This is a much more difficult task than early planning which carefully considered the layout of a city prior to construction taking place.

Therefore, for a community who may not be traditionally drawn to comprehensive planning, a triggering event may be necessary in order to evoke the need for a plan. This triggering event can be rapid population growth and noticeable environmental degradation, both common prompts for planning, or the planning can come as the result of natural disasters such as floods or hurricanes. The triggering event can permanently damage a vulnerable community if the residents and local governments do not take actions to rebuild, renew, and put steps in place to prevent the event from causing extreme effects in the future. The ability to recover from such an event is known as resiliency and is a key characteristic to preserving the essence of a community (Adger, 2000).

Resiliency may be easy to understand in the direct aftermath of a disaster, but it also must enable the community to learn in the long term, retain the information gathered, and put a

plan into place in order to have a different outcome when disaster strikes again (Folke 2005). Resilience theory is not static, existing only immediately after the disaster, but must be applied over time and continuously in order to most effectively increase the sustainability of that community.

The purpose of this study is to examine comprehensive planning and resiliency in Louisiana following Hurricanes Katrina and Rita. The Louisiana Speaks project, created with federal CDBG money after Hurricane Katrina, spread information about comprehensive planning across south Louisiana. The project used the window of opportunity immediately after the disaster to help parishes consider new ways to rebuild and adapt for the future. This research examines whether this had an effect on comprehensive planning in the long term with the following three objectives:

1. Has there been any change in the number of plans adopted following the active hurricane seasons of 2005 and 2008?
2. What factors are associated with levels of planning in Louisiana at the parish scale since 2005?
3. Has there been more attention to resilience in planning since 2005?

In order to fully understand the questions being addressed, it is important to review certain information prior to explaining the research findings. Brief overviews of comprehensive planning, Louisiana natural disasters, and resilience theory will give a background to the research study.

CHAPTER 2: COMPREHENSIVE PLANNING

2.1 What Is Planning?

According to the Bureau of Labor Statistics, urban and regional planning is a field of study in which planners help towns, cities, regions, or even states with developing the future direction of their community. These communities can be urban metropolitan centers that need assistance in managing existing infrastructure and population, or they can be rural communities who would like to preserve their small town characteristics and protect important forestlands and habitats (Occupational Outlook Handbook, 2009). Many times, the goal of urban and regional planning is to produce a guide or set of documents that can provide a vision for the community. This document, frequently known as a comprehensive plan, seeks to manage growth, protect infrastructure, preserve sensitive ecological systems, and protect the health and safety of the public and natural environment (Randolph, 2004). Comprehensive planning has grown in recent years in its recognition as an important step in environmental protection and policy-making. It combines what could be piece-meal single projects, such as transportation, zoning, and ecological restoration, into a comprehensive and holistic approach which considers all facets of the environment and natural resources (Conroy, 2009). Comprehensive plans also consider future growth and economic development in order to keep pace with a rapidly-developing world, while still maintaining a sense of place and a social context (American Planning Association, 2011).

2.2 Importance of Planning

Why is it important to plan for the future? In the 20th century and especially following WWII, Americans made enormous strides in technological growth, gained wealth, and implemented changes in development patterns. People moved out of the city in search of land

and the idea of the commute became increasingly common. Compact cities gave way to the interstate highway system, suburbs, and retail strip malls. By 1990, for the first time in history, more people lived in suburbs than in central cities (Daniels, 2003). Zoning principles moved away from mixed-use dense cities to “safer” separation of uses (Randolph, 2004). This tendency toward sprawl leads to a greater use of resources. More roads are required to reach outlying areas, more pavement is required to construct large private developments, and more cables, pipes, and other basic utilities must be used. In addition, as more land is developed, less land is conserved. This seems like a simple concept, but the development of land and the degradation of environmentally sensitive areas have been happening at an alarming rate.

This degradation is not just a direct conversion of forest or swampland to residential suburbs, but occurs indirectly as well. Increased impervious surfaces can lead to increased runoff, which leads to poor water quality and flooding hazards. Increased vehicle usage leads to increased local air pollution. Drinking water can be susceptible to contamination from runoff or from reduced infiltration as a result of impervious surfaces. Increased development also threatens habitats and decreases the available land for native species. Impacts affect not only the environmental surroundings but the people as well through increased risk to hazards through flood, fire, and other risks (Randolph, 2004).

2.3 Comprehensive Planning in the United States

If comprehensive planning promises to control growth, protect sensitive habitats, and raise property values, why isn't it implemented in every city, county, and state? There are several reasons that planning is still missing in communities across the United States. First, Navarro and Carson in their report on growth controls, differentiate between first-generation and second-generation land-use policy. First-generation policy includes building codes, construction

regulations, and zoning. Second-generation policy incorporates those more complex policies such as comprehensive planning, growth restrictions, and other advanced planning tools (Navarro, 1991). It is more common for a community to have building codes and construction regulations than comprehensive plans. First-generation land-use regulations require little manpower to regulate, and a community or parish can implement these regulations within a police jury or other rural form of government. No specialized planning department or training is required.

Developing second-generation land-use tools requires more resource commitment than first-generation tools. Specialized staff, a planning department, and knowledge in planning theory are all necessary to successfully implement comprehensive planning. Therefore, communities with existing staff and knowledgeable personnel will be able to more easily implement planning initiatives than those without the properly trained staff (Conroy, 2009). These communities will have a lower transaction cost to developing and implementing comprehensive or land-use planning.

Secondly, comprehensive planning can be unpopular with private citizens. Policies from the 1920's have held government responsible to protect private property and its owners. The National Flood Insurance Program, for example, encourages building and rebuilding in hazardous or flood-prone areas, with no real incentive to relocate. The cost of rebuilding is low (Abromovitz, 2002). Couple this with strong private property rights, and it is difficult to change the ways of settled residents. There is no real incentive to leave a piece of private property as forested wetland, stream buffer, or natural habitat, when that property could be sold off as parcel development for a much higher price. Many private property owners do not hold the ecological knowledge to make such decisions regarding environmental protection. Many do not understand

that development, even on a small parcel, can have a cumulative effect. Understanding of a situation is necessary for an informed decision (Verchick, 2010).

Finally, prior research has studied the factors that influence the adoption of comprehensive planning across the United States. A trend concerning demographic data has emerged in each study and shows that comprehensive planning is largely an urban phenomenon (Lubell, 2009). Urban areas are more likely to adopt planning strategies as a response to already prevalent growth that needs to be controlled. These larger cities or regions also have the resources available to develop and implement sustainability policies and create or maintain a planning staff or department. Many smaller and more rural communities lack the resources to initiate substantial policies toward growth, or do not feel the pressure to implement growth strategies in their community (Conroy, 2009). Demographic research has also shown that these communities will have more college graduates and a higher median income, both which may have more favorable views toward smart-growth policy adoption (O'Connell, 2009).

2.4 Comprehensive Planning in Louisiana

Prior to the 2005 hurricane season, Louisiana parishes were slow in their adoption of comprehensive planning. According to the 2002 American Planning Association (APA) State of the States (2002), Louisiana legislation regarding comprehensive planning remained mostly unchanged since the 1920s. In 1977, legislation authorizing state planning and development districts was added in order to address growth and development around the urban regions of the state, but made sure to exclude any mandates for planning (Maloney-Mujica, 2008).

Most planning in Louisiana has been either localized to small restoration districts or towns or based on coastal restoration projects. Although regional land-use planning remained at

a standstill, the APA awarded the Barataria-Terrebonne National Estuary Comprehensive Conservation and Management Plan a national planning award in 1997. Other planning efforts were concentrated in the few urban regions of the state including East Baton Rouge City/Parish and the City of New Orleans. As of the publication of the 2002 State of the States, the only parishes in the state to have parish-wide comprehensive plans were Plaquemines, St. Charles, East Baton Rouge, Lafayette, and Bossier (Maloney-Mujica, 2008). A moderately slow rate of population growth in the state compared to neighboring states could be to blame for slow planning reform. From 1990 to 2000, Louisiana saw a 6% increase in population compared to the national average of 15% (American Planning Association, 2002).

Historically, residents of Louisiana have strongly supported private property rights and carried a distrust of government. Even following Hurricanes Katrina and Rita, amendments appeared in Article 1 section 4 of the Louisiana Constitution dealing with the issues of “takings” and eminent domain power (Costonis, 2008). This section states that every person has the right to acquire, own, control, use, enjoy, protect, and dispose of private property and private property cannot be taken unless it is specifically for public purposes such as utilities, parks, drainage, or roads, among other uses outlined in the constitution (Louisiana Const., 1974). Louisianans have been traditionally very leery of giving up rights to freely use their own property.

Research conducted in Louisiana points to the influence of demographic factors on planning at the parish level as well (Maloney-Mujica, 2008). Metropolitan areas were most likely to adopt comprehensive planning tools and Maloney-Mujica’s research suggested that median housing values were the best predictor of planning adoption. She suggested that planning is in response to median housing values, in that residents of a community look to protect their private property and investments. A second contributing factor in her research suggested that the

percentage of water in a parish has a positive correlation to the adoption of planning tools and policies. She hypothesized that water has a recreational or real estate value and residents want to protect those features of the community as well in order to keep median housing values elevated. She stated that demand to protect quality-of-life features as a planning incentive is a powerful argument for planning reform in Louisiana (Maloney-Mujica, 2008).

Although the percentage of water in a parish has a positive correlation on adoption of planning policies, Maloney-Mujica did not believe that coastal parishes with large water masses were inherently driven toward adopting comprehensive planning. The opposite may actually be true. Through the Coastal Protection and Recovery Authority (CPRA), a Comprehensive Master Plan for a Sustainable Coast was developed in 2007 outlining steps necessary to reduce risk of developing in coastal areas and included suggestions for improved land use, zoning, and permitting. The Barataria-Terrebonne National Estuary Program also developed a Comprehensive Conservation and Management Plan which includes many parishes in the coastal zone west of the Mississippi River. This plan calls for coordinated planning efforts combined with ecological management. Comprehensive documents such as these, while extremely beneficial to the coastal plain as a whole, could lead to parishes and communities discounting comprehensive planning for their parish, assuming coastal zone management plans can also serve as comprehensive planning (Maloney-Mujica, 2008).

Louisiana has traditionally lagged behind many other states in adoption of comprehensive planning, but it has seen a surge since 2005. Comparing comprehensive plans adopted in 2005 and before to those adopted after 2005, there is a measureable increase (figure 1). The number of plans adopted per year became more frequent following the hurricanes of 2005 and continue to the present day.

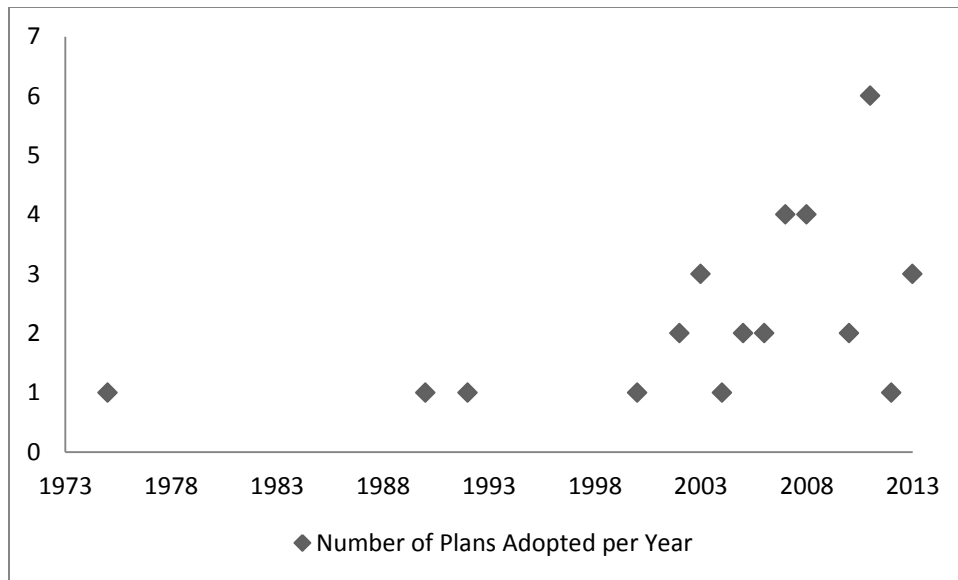


Figure 1: Number of comprehensive plans adopted per year, 1975 – 2013 (in progress plans). Figure compiled by author for all parishes in Louisiana.

Plans that were adopted in 2005 and prior (as any plans adopted after Hurricanes Katrina and Rita would most likely not be implemented until at least 2006 and those adopted in 2005 were most likely already in development) total only 12 since the first plan was adopted in 1975 (Plaquemines Parish). However, since 2005, 22 parishes have adopted comprehensive plans (see Appendix B for Comprehensive Plan Adoption by Year). Just in 2011 alone, six parishes adopted comprehensive plans. This marks an increase in planning interest and adoption in the state. Figure two maps the plans adopted in 2005 and prior and those adopted after 2005.

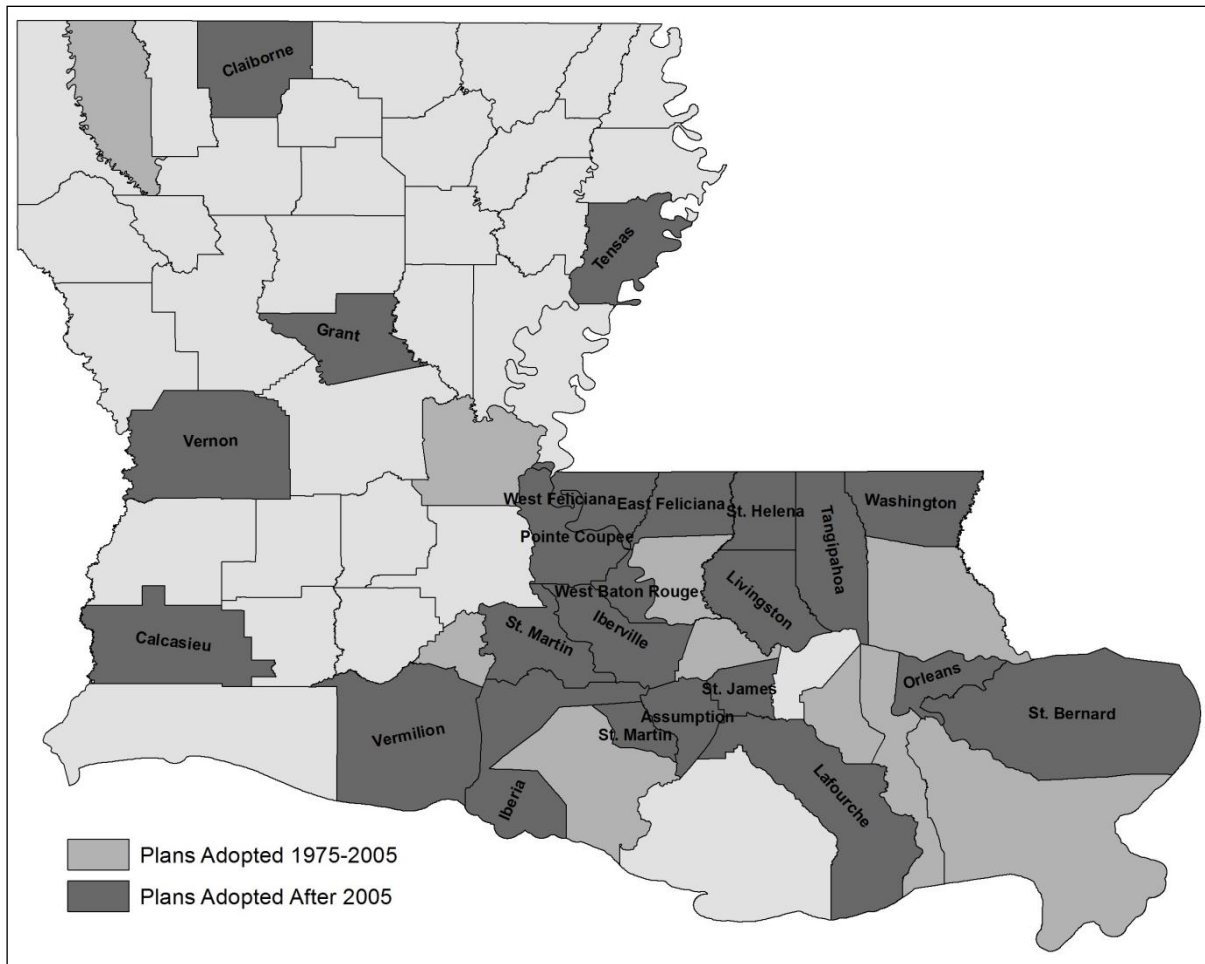


Figure 2: Comprehensive plans adopted in 2005 and prior versus plans adopted 2006 to the present. Map compiled by author.

CHAPTER 3: NATURAL DISASTERS IN LOUISIANA

NOAA estimates that Louisiana communities will experience a hurricane on average every 7-8 years and a major hurricane every 20-25 years (classified as a category 3 or higher). (NOAA) Obviously these are only estimates, as Louisiana has experienced a high rate of hurricanes in the past 10 years, with major hurricanes Rita and Katrina in 2005 and category 2 hurricanes Gustav and Ike in 2008 (Blake, 2011). Prior to Hurricanes Katrina and Rita in 2005, Cutter et. al. created a Social Vulnerability Index (SoVI) which categorized counties across the entire United States based on factors such as wealth, age, population density, economic dependency, and race. At the time (the U.S. map has since been updated and contains a more generic three step index of vulnerabilities), the parishes along the coast of Louisiana were categorized as middle to highly vulnerable (Cutter, 2007). Coupled with relatively frequent hurricane occurrences (figure 3), this leaves coastal Louisiana extremely vulnerable to the effects of hurricanes.

3.1 Hurricanes Katrina and Rita of 2005

Hurricane Katrina made landfall in Plaquemines Parish on August 29, 2005. Once a category 5 storm, it hit landfall as a category 3. Only four weeks later, Hurricane Rita made landfall near Sabine Pass, Texas, also as a category 3 storm. Katrina devastated the southeast portion of the state and flooded 80% of New Orleans as levees failed. Rita flooded and caused severe wind damage to much of the southwestern portion of the state. Between the two storms, over 200,000 homes were destroyed and more than 1,500 people perished (Louisiana Recovery Authority, 2007). Those parishes that were not devastated by damage and flooding were inundated with evacuees from other parishes. Allen Parish alone received 1,200 Katrina evacuees

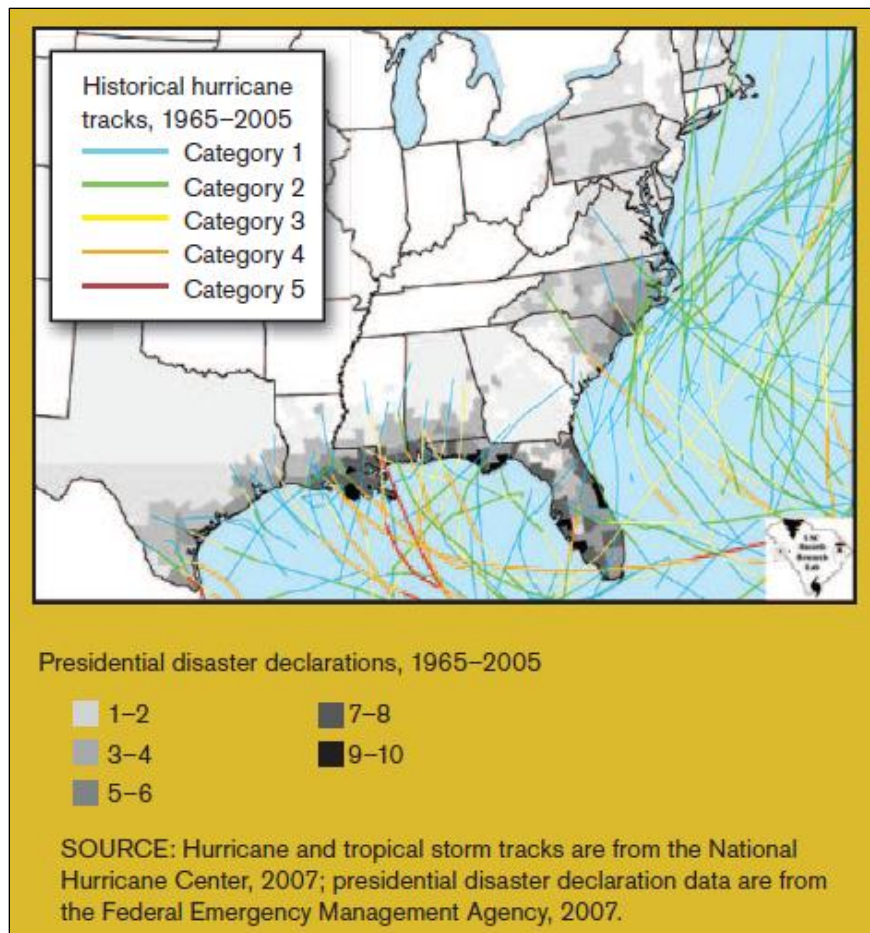


Figure 3: Hurricane and tropical storm tracks and presidential disaster declarations by county, 1965-2005 by Susan Cutter, 2007.

and 10,000 Rita evacuees, an approximate 50% increase in population in just one month (Louisiana Recovery Authority, 2006). Although difficult to establish precisely, it is estimated that upwards of 74,000 people not only evacuated, but moved to East Baton Rouge Parish following hurricane Katrina (Vetter, 2006).

3.2 Hurricanes Gustav and Ike of 2008

Hurricane Gustav made landfall as a category 2 storm on August 27, 2008 in Terrebonne Parish. High winds and torrential rains caused extensive damage from the south and through the

central and northern parts of the state. Close to 70% of homes across Louisiana lost power. The city of Baton Rouge reported thousands of trees lost and experienced power outages for as long as two weeks. Hurricane Ike made landfall only 12 days after Gustav as a category 2 storm in Galveston, Texas. Ike caused storm surges up to 20 feet in southwestern parts of the state. Many still had not regained power from Hurricane Gustav when Ike hit. Unlike Hurricane Katrina, nearly 2 million residents from the lower parishes of Louisiana were successfully evacuated during Hurricanes Gustav and Ike (Governor's Office of Homeland Security and Emergency Preparedness)

3.3 Other Natural Disasters in Louisiana

Louisiana is known best for damaging hurricanes and tropical cycles but other natural disasters plague the state as well. Forest fires during the summer months are not uncommon, and just recently in August 2011, a marsh fire near New Orleans covered 1550 acres and sent clouds of smoke and debris over New Orleans and Baton Rouge (figure 4). The Louisiana Department of Environmental Quality issued air quality warnings in the surrounding areas as the New Orleans Fire Department let the fire burn itself out from surrounding waters (Boyd, 2011).

Mississippi River flooding also made 2011 a busy year despite a quiet tropical season. Heavy storms in the northern U.S. combined with spring snow melt flooded the Mississippi River and its tributaries as it traveled south toward Louisiana and the Gulf of Mexico. Many cities, including Baton Rouge and New Orleans, braced for record flood staged along the river. Baton Rouge placed temporary flood control structures atop levees in downtown and patrolled



Figure 4: Photograph of marsh fire smoke billowing towards New Orleans suburbs. Photograph by Andrew Boyd, Times-Picayune.

the levees in East Baton Rouge parish to watch for pressure failures. Rural parishes in north Louisiana experienced massive flooding. In order to protect more highly populated areas along the Mississippi, the Army Corps of Engineers enacted flood control structures along the river. The Morganza Spillway was opened for the first time since 1975, releasing flood waters into 3 million acres of the Atchafalaya Basin and surrounding croplands. The Bonnet Carre Spillway was also opened to release water into Lake Ponchartrain, easing pressure on New Orleans levees (Reynolds, 2011).

Although these natural disasters resulted in no known deaths in Louisiana and property damage was minimal (although many croplands were inundated for long periods of time following the flood diversions), they were a reminder of the power of natural occurrences and our relationship with the environment around us, even during a quiet tropical season.

3.4 Rebuilding in Louisiana

Hurricanes Katrina and Rita caused a sense of chaos among Louisiana residents. Communities changed overnight as evacuees flooded surrounding parishes and citizens felt a sense of helplessness over their inability to return home or survey the damages. The hurricanes exposed social-ecological vulnerabilities including severe erosion, levee failures, and intense flooding (Louisiana Recovery Authority, 2007). Citizens were vulnerable. This opened the doors for rebuilding opportunities never seen at such a magnitude. One example of this was comprehensive planning.

Following Hurricanes Katrina and Rita, billions of federal recovery dollars funneled into the state to aid in rebuilding. The Louisiana Recovery Authority (LRA) was created to address recovery goals and to use \$10.4 billion dollars in the form of Community Development Block Grant (CDBG) funds to help displaced residents return home. The mission of the LRA was to build “safer, stronger, and smarter than before” (Louisiana Recovery Authority, 2008). Out of this mission, Louisiana Speaks was created. The LRA partnered with Baton Rouge non-profit Center for Planning Excellence and was led by national planning firm Calthorpe and Associates. Louisiana Speaks was designed as a 50-year long range comprehensive plan for South Louisiana. Over 18 months, 27,000 residents, community leaders, and stakeholders participated in developing the plan, slated as “one of the largest planning processes in the history of the United States” (Noah, 2009). Louisiana Speaks worked with parish recovery projects to integrate smart growth, land-use planning, coastal restoration, storm protection, economic development, and transportation planning together while still maintaining regional history. LRA centered the Louisiana Speaks project around three goals: Recover Sustainably, Grow Smarter, and Think Regionally (Authority, 2010).

From the Louisiana Speaks vision, a regional plan was developed for twenty-seven parishes in South Louisiana which included concentrated growth regions, smarter transportation, and environmental protection (figure 5). The Louisiana Speaks Pattern Book and the Louisiana Land Use Toolkit were also developed. These two documents were meant to be resources for homeowners on making storm-safe building and sustainable design decisions. Ten thousand copies of the Pattern Book were handed out to local and big box hardware stores while the Land Use Toolkit was distributed to mayors, planning practitioners, developers, and architects. (Excellence, 2010)

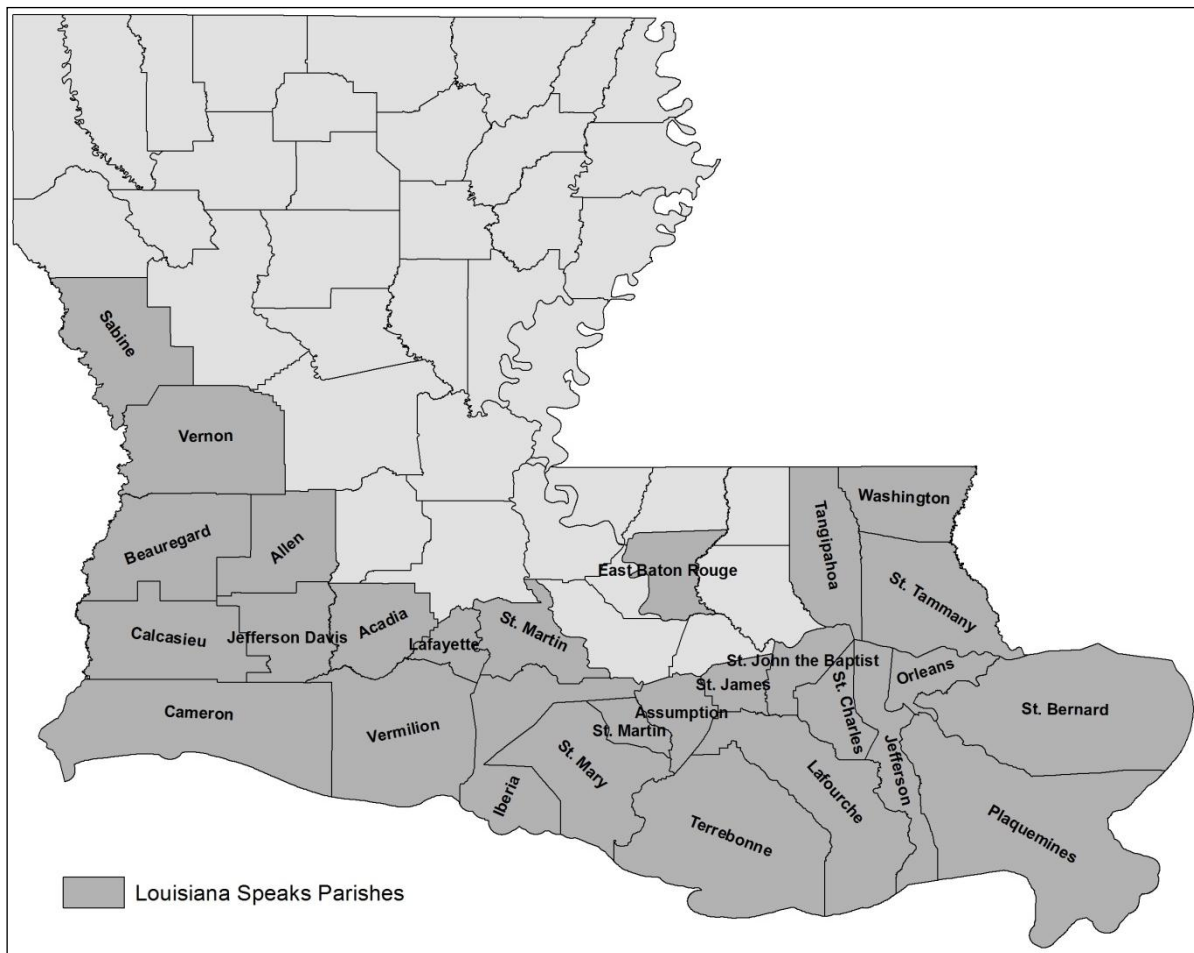


Figure 5: Parishes which were part of the Louisiana Speaks project.

CHAPTER 4: OPPORTUNITIES FOR REBUILDING

4.1 Resiliency, a Literature Review

Change in a system can be gradual and move forward in a steady and manageable direction, or external disturbances can force immediate and substantial change to a system. The future of the system is uncertain unless quick measures are taken for adaptability and renewal. The ability to respond to these abrupt changes is known as resilience theory. Resilience is defined by Folke, et al as “the extent to which a system can absorb natural or human perturbations and continue to regenerate without degrading” (Folke, 2005). These disturbances can be political, social, or environmental. A resilient system can be viewed as one that can return to its original state after an external disturbance such as a hurricane, flood, or fire, but it can also be viewed as one that has the capacity to learn and adapt to changing circumstances (Adger, 2000). The system must be able to retain some form of its same function and purpose while simultaneously undergoing transition in response to the disturbance. Resilient or highly adaptive systems have the capacity to take a disturbance and channel it into an opportunity for growth and development (Folke, 2005). Those resistant to change may find an opportunity for learning and knowledge generation during a disturbance and this can open up opportunities for adaptability.

Resilience theory has been applied to ecological systems as well as human systems, or coupled together in terms such as “ecosocial systems” and “socialecological systems.” It is not just the environmental capability to continue to exist following a natural disaster but the social aspect and ability to retain working social memory and a sense of the community context. There should be a balance between the social and the ecological aspect of the system in order to have a healthy community. A fully resilient social system without regard for the environment could

mean detriment to the local ecology, which will in turn eventually mean detriment for the social system (Adger, 2000).

4.2 Resources and Resiliency

In order for a system to be resilient, it must possess a social memory. This local knowledge provides contextual information about the people, ecology, and social network of the community or system. This gives the community the ability to adapt in a complex and appropriate manner to its particular region. One size will not fit all. Local knowledge is a key feature to the sustainability of a community, but the availability of resources may be limited. This is where an outside resource can act as a bridge between a community facing disaster and one that can adapt in order to sustain. These resources are information providers and bring in new ideas, a system of networks, financial assistance, and outside knowledge to the community, which helps to build social capital. The resource partners with the local community knowledge base and creates a learning environment while maintaining social context. Without the local knowledge base, the leaders may attempt to adapt the community in an unfitting way, and low social memory can actually lead to greater vulnerability, causing the system to deteriorate further (Folke, 2005). Also, without the outside resource, the local community would many times not have the knowledge or ability to put their adaptive strategies into any workable plan. Local governments are crucial to creating and implementing smart growth and land use policies in the community. Local governments hold the social memory necessary to ensure a sustainable and resilient plan of action. Local officials will have a unique insight into the needs and concerns of the local citizens (Webler, 2003).

Using an outside resource lowers the transaction cost incurred by the vulnerable community. Transaction costs are measures of not only the direct costs occurred in the buying of

a good or service, but also the energy and effort necessary to perform the task (Coggan, 2010). In rebuilding a community following a natural disturbance, transaction costs can be astronomically high, especially in rural areas with few resources available. The resource who brings in outside knowledge can greatly lower the transaction costs for the community and allow it to adapt or at least recover when it may not have had the ability to do so otherwise.

In a broken or disturbed system, outside resources can play a crucial role, but that role can be taken a step further. Tipping point leaders, a term coined in organizational performance theory, (Kim, 2000) refers to those who take the momentum and energies created in the window of opportunity (in resilience literature, the disturbance) and focus the community's engagement on a clear path of restructuring and an "epidemic movement towards an idea" (Folke, 2005). This type of outside resource connects momentum to the problem in order to form policy and change.

4.3 Resiliency in Context

Resiliency is easily discussed along with the subject of natural disasters. Hurricanes can cause widespread disturbance, requiring immediate action from those affected. A vulnerable natural system, such as the degraded coasts of Louisiana, can exacerbate the destruction and effect of the natural disaster. These vulnerable natural systems then affect the human systems through flooding, economic pressures, and social sustainability (Walker, 2006). This was apparent through the hurricanes of 2005 and 2008. Nearly four times the normal amount of wetland loss occurred overnight during the landfalls of both Katrina and Rita (Verchick, 2010). To an already injured coastline, this is tragic to the ecology of the area and to the people, who as a result experience increased flooding and storm surge.

Communities can take steps to mitigate the impacts of natural disasters such as hurricanes and enhance their overall resilience. A better understanding of the link between human and natural systems is key, as many times human influence such as poor land use planning and unsustainable building habits create further disasters when an event does occur. Larger community knowledge bases and information sharing among local and outside resources can lead to strong leadership, adaptive strategies, and a plan to avoid long-term social problems (Adger, 2005). Reducing vulnerability between disaster events by reducing the exposure to the hazard and reducing the severity of the impact will increase the resilience of the community in the long run (Colton, 2008).

4.4 Hurricane Recovery and Resiliency in Louisiana

The term resiliency was used throughout the Louisiana Speaks Regional Plan and directly in workshops and town hall meetings. Most likely, this was a new term to many citizens especially when coupled with smart growth and planning, but citizens were able to adapt quickly to the vernacular. Louisiana Speaks reports that “Louisianians... expressed a clear understanding that our patterns of growth directly influence the *resilience* of our communities” (Louisiana Recovery Authority, 2007) (emphasis added).

This language continued in the aftermath of Hurricanes Gustav and Ike. From a \$1 billion pool of Community Block Development Grant (CDBG) funds for recovery from Gustav and Ike, the Comprehensive Resiliency Pilot Program was developed. A \$10 million grant was set aside for this program to “enable communities to be proactive in addressing risk and tying those factors into population growth, flood zones and economic development” (Stephens, June 24, 2010). Facilitated by the Office of Community Development-Disaster Recovery Unit, the program, intended for the 53 parishes affected by Hurricanes Gustav and Ike, coupled mitigation

strategies with sustainability measures such as “forward-thinking land-use planning” to protect coastal communities and their populations (Louisiana Recovery Authority, March 2010). Those submitting proposals were to do so with economic development and environmental resiliency in mind. From the \$10 million dollar grant, \$8,848,888 was awarded to 29 projects throughout the parishes. Many of those projects included parishes and/or city comprehensive master plans and land-use plans titled as resiliency plans. For the full list of projects awarded, see Appendix D.

4.5 Resiliency Theory and Comprehensive Planning – Objectives of the Study

Following the devastating effects of Hurricane Katrina and Rita, there is an unmistakable transitional period, where sudden change opened opportunities for adaptation. Local citizens, as stated before, were looking for answers and ways to prevent such destruction from affecting them again. The Louisiana Speaks project spread education about smart growth and planning into every region of south Louisiana and involved the residents in the process. They connected local officials to national planners and to new theories of land-use and future growth. They effectively provided the outside resource necessary for a resilience movement in south Louisiana, introducing resilience theory as common language in the communities. In fact, all four hurricanes made Louisiana residents more informed than ever before about the problems of coastal erosion (Verchick, 2010). The Louisiana Recovery Authority used this opportunity to spread information about comprehensive planning in Louisiana, as citizens had possibly never been as receptive to smart growth principles as they were following these disturbances.

Comprehensive planning and resilience theory couple together easily when discussing environmental disaster. Smarter growth strategies, land-use tools, and ecological restoration are key principles to a comprehensive plan and also lessen the vulnerability (and increase the resiliency) of a community. Smarter land-uses and sustainability policies drive future decisions

made by the parish and can therefore enhance the natural systems. The question remains however if the regional planning movement through the Louisiana Speaks project and federal funding for recovery had a lasting effect on the receptivity of planning in general and an attention to resilience theory in planning, or if it was simply a short term, high energy movement in the months following Hurricanes Katrina and Rita. In order to build resiliency in the long term, there must be a capacity building element in which a community can change and learn over time. Local and state governments and citizens can embrace comprehensive planning as an important part of the approach to build capacity and protect communities from future disasters.

In order to study this relationship between comprehensive planning and resiliency in Louisiana following these devastating hurricane events, the following questions are examined:

1. Has there been any change in the number of comprehensive plans adopted following the active hurricane seasons of 2005 and 2008?
2. What factors are associated with levels of planning in Louisiana at the parish scale since 2005?
 - a. Specifically, are demographic variables said to contribute to planning prior to 2005 still relevant after 2005?
 - b. Did the amount of hurricane damage affect the level of planning on the parish scale?
 - c. And finally, did the level of knowledge or involvement in planning initiatives such as Louisiana Speaks lead to a greater level of planning on the parish scale?
3. Has there been more attention to resilience in planning since 2005?

These questions can be examined by studying the leaders in the communities throughout the state. Aside from socio-economic and environmental factors, there is also a level of decision-making among those that ultimately choose to adopt the plans. If plans adopted have increased and the goals of plans have shifted years after the hurricanes, this will express an increased

awareness of comprehensive and resiliency planning that has gone beyond a short term post-catastrophic movement. Leaders may realize comprehensive planning can provide further emergency preparedness and community resilience, and may understand the significance of having a comprehensive parish-wide plan for their community, regardless of population density or socio-economic status.

Parish-level comprehensive planning was chosen as a scale for several reasons. Smaller scale land-use plans at the city level are more common in Louisiana, but these plans focus more on urban or downtown environments and less on various scales and environments across a region. Although state level planning should be an eventual goal for Louisiana, it is unlikely to happen in the near future. Choosing to study at the parish level gave a consistent measurement scale and contact point for survey research and focused on the importance of having a large scale plan for each parish, whether it was a metropolitan center or rural farmland.

The research questions also continue previous research performed at the parish level regarding planning initiatives in Louisiana. This research studied planning tools adopted by parishes such as zoning, land-use planning, and building codes, and measured the level of planning using demographic variables. However, the author purposefully excluded those parishes that adopted planning tools following the hurricanes in 2005, stating that this marks a clear increase in planning activity as a response to the concerted efforts of the Louisiana Speaks project in the aftermath of the hurricane season (Maloney-Mujica, 2008). For this reason, research question two can explore other factors that may influence planning aside from those studied by Maloney-Mujica, especially following the hurricane events.

CHAPTER 5: RESEARCH METHODOLOGY

5.1 Survey Instrument

In order to explore these research questions, a survey was conducted in the fall of 2011 (See Appendix A for Survey Materials). This survey was sent out via email to one contact person in each parish. The email addresses were collected from parish websites and the Louisiana Parish Police Jury website. If there was a clear contact person but no email address provided, a simple phone call to the department usually resulted in a valid email address. If the parish had a planning department, the survey was sent to the planning director or head of the department. If the parish did not have a planning department, the survey was sent to the parish administrator/manager. In order to attempt to generate equally knowledgeable results, the greeting email each participant received ask them to please forward the survey to the most logical person to answer questions related to planning in the parish, if they did not believe they were that person. Many did or directed it to the correct person upon follow-up.

The survey consisted of four parts. The first part gave a definition of comprehensive planning and its relation to zoning. The survey then asked if the parish had a comprehensive plan, zoning, and a planning commission. Each question was answered with a yes, no, I don't know, or in-progress. The second section consisted of several questions to attempt to gauge the perceived obstacles to planning in the parish. The respondent was asked to rate several topics such as citizen support for planning, full-time planning staff, prior hurricane damage, and participation in Louisiana Speaks, among others. A Likert scale was used for this section with seven parts ranging from "A Major Disincentive to Planning" to "A Major Incentive to Planning." For example, if there was strong citizen support for planning in the parish, "A Major

Incentive to Planning” would be marked. If there was no funding to implement a comprehensive plan, then “A Major Disincentive” would be marked.

The third section was similar to the second section in that it also used a Likert scale. Participants were asked about their familiarity with various planning-related terms such as smart growth, comprehensive planning, Louisiana Recovery Authority, and funding for planning, among others. Their knowledge level on each term was measured from “not at all familiar” to “very familiar.” Finally, the fourth section included three brief questions asking if they believe their parish developed comprehensive planning measures as a direct result of past hurricane damage or other environmental disasters.

5.2 Survey Recipients

Following the first contact, the survey received 12 responses out of 64. A reminder email was sent out 2 weeks later which generated 5 more responses. From there, phone calls were placed to as many parishes as possible to directly ask for a survey response. Either the respondent directed me to the most appropriate person or simply reminded the receiver of the survey to complete it. From there, the total number of surveys completed out of 64 parishes was thirty-four (figure 6). After receiving a 53% response rate, the survey was closed approximately two months after opening.

5.3 Analyzing the Survey

In order to statistically analyze the survey, the three final questions of the survey were combined and used as the dependent variable. The questions were as follows:

1. Have you adopted or amended a comprehensive plan as a direct result of hurricanes or other environmental disasters since 2005?

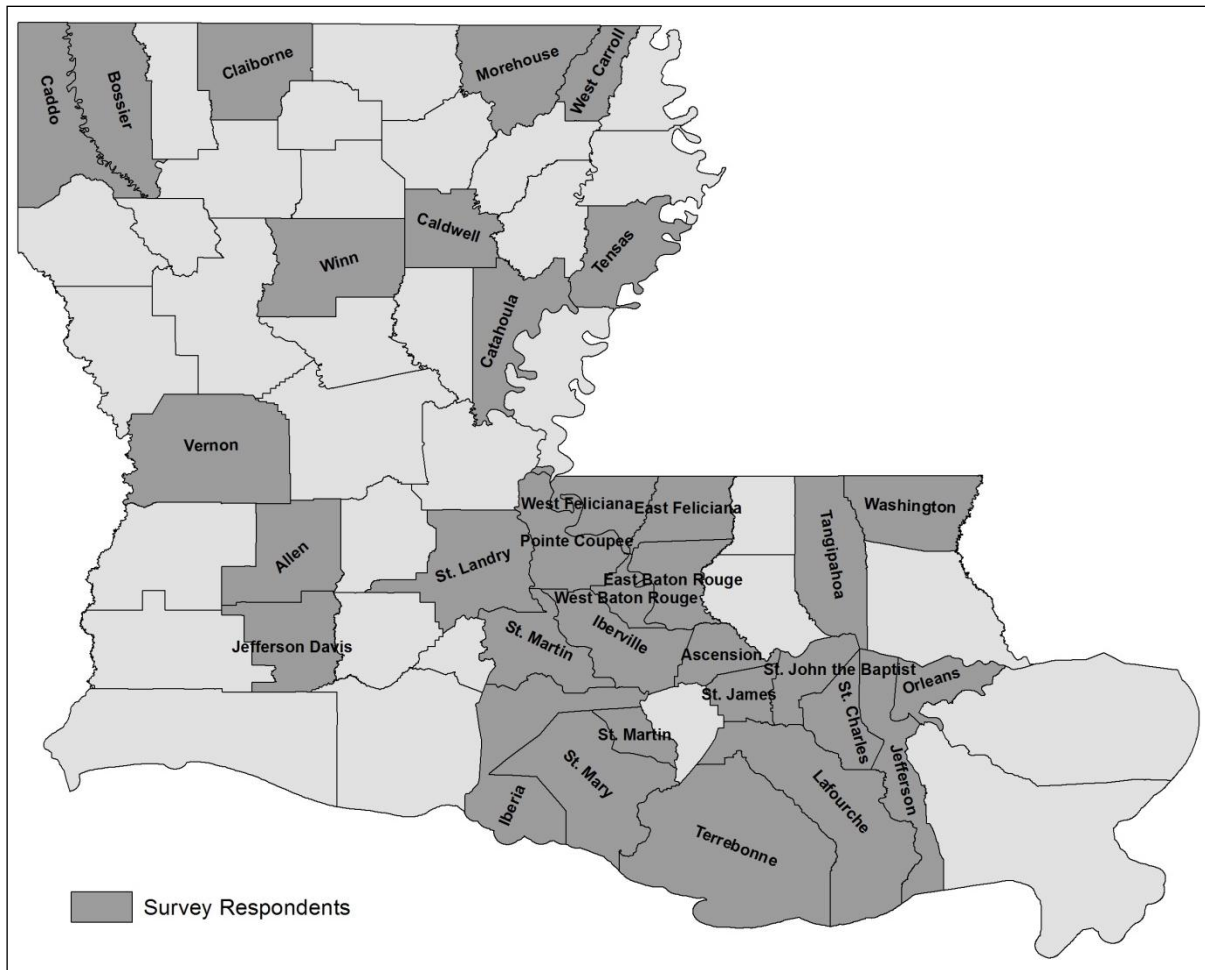


Figure 6: Map of respondents to the planning survey.

2. Have you increased staff directly responsible for planning since 2005?
3. Have you increased your budget for planning since 2005?

For each parish that answered “yes” to any of the questions, that parish received a score of 1. If a parish answered no to all three questions, that parish received a score of 0. The answers were not cumulative, as many answered yes to more than one answer as expected. Giving a parish a score of 1 for any yes response signaled an increase in planning in the parish. From

there, a chi square analysis was used to identify key factors associated with increased planning in the parish since 2005 using the survey responses.

Previous studies have concluded that regional planning is mostly an “urban phenomenon” and occurs in regions with high population growth, higher per capita income, and higher percentage of college degrees (Lubell, 2009) (Conroy, 2009). Demographic data was collected for those parishes that completed the survey in order to check for continuity in planning adoption. US Census data for 2010 was collected for Per Capita Income, Percent with College Degree, Percent Population Change, and Persons per Square Mile. This was then analyzed with the increase in planning variables using a difference in means test.

CHAPTER 6: RESULTS

6.1 Dependent Variable Analysis and Planning Momentum

Out of 34 survey responses, 17 parishes marked an increase in planning using the three questions mentioned previously (figure 7). Out of those 17, sixteen either have a comprehensive plan or are currently developing one. Those sixteen also said they had a planning commission, although only ten had a planning department. Further, of the 17, ten were part of the Louisiana Speaks study area. Fifteen adopted comprehensive plans for the first time after 2005.

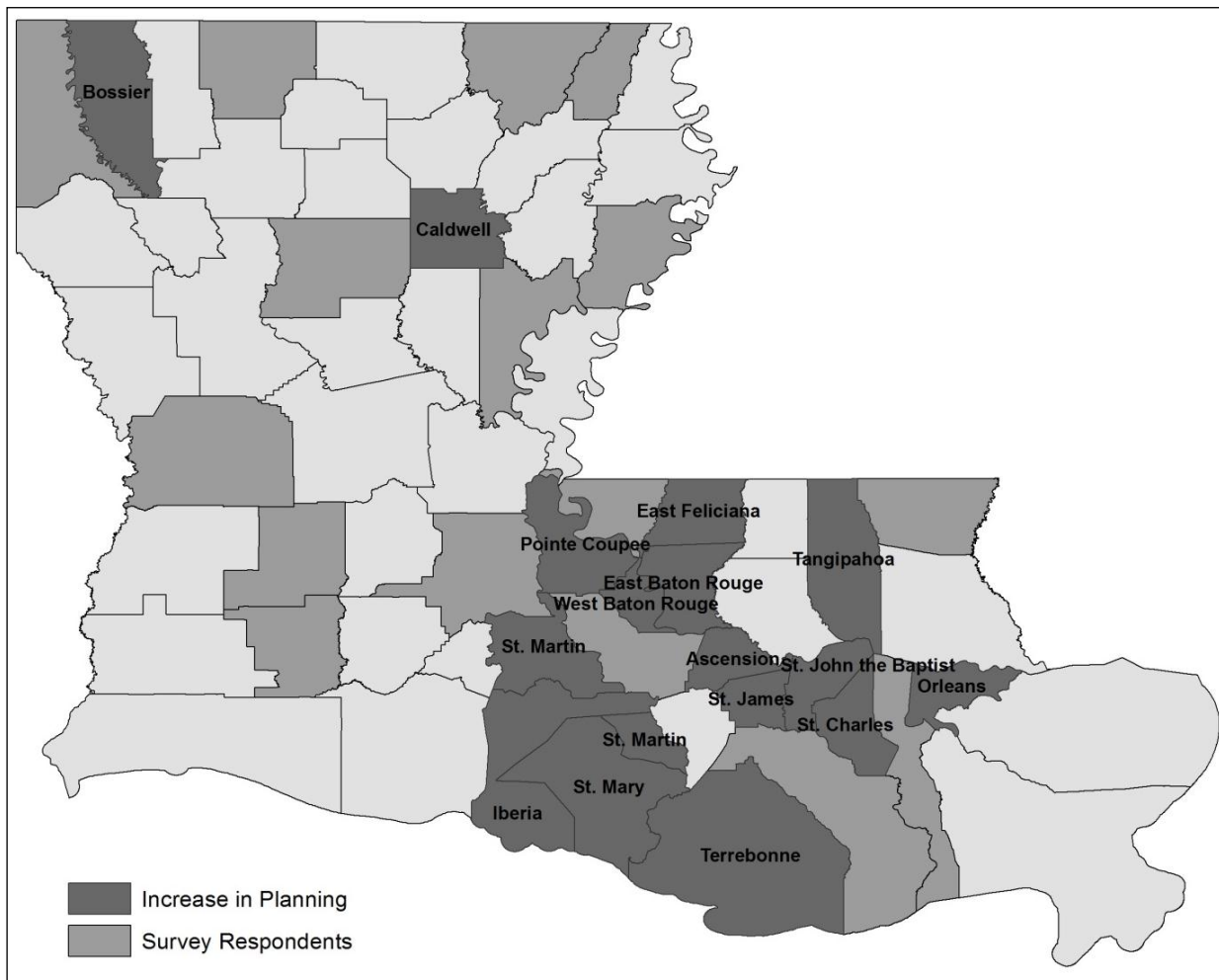


Figure 7: Map of dependent variable: increase in planning.

Caldwell Parish was the only parish out of the 17 that marked the first question (“Have you adopted or amended a comprehensive plan as a direct result of hurricanes or other environmental disasters since 2005?”) as yes but also stated that the parish did not have a comprehensive plan, planning department, or other advanced planning measure. However, the parish was still marked a 1 for increase in planning and left in the analysis.

One of the most interesting components of the initial analysis of the survey was zoning. Historically in Louisiana, zoning is established prior to comprehensive planning, although planning practitioners suggest planning should always precede zoning. Comprehensive planning is much more dynamic than zoning and takes into account all economic, ecological, and physical aspects of the community. Zoning should follow planning and be a legal document to help implement the visions of the comprehensive plan, but planning is more complicated than zoning and it uses more resources to implement. When zoning comes first, as it therefore frequently does, it is usually reflective of existing conditions, easily amended, and therefore less controversial to local citizens. It simply gives a map or blueprint of parcel by parcel instructions for permissible land uses (Maloney-Mujica, 2008). It has not been uncommon in Louisiana for a comprehensive plan to follow existing zoning, or at least slightly mimic it. Based on previous research by Maloney-Mujica (2008), out of 64 parishes, 21 had zoning ordinances, but only 14 of those had adopted comprehensive plans.

As stated previously, based on the 17 respondents that marked an increase in planning in the survey, 16 had comprehensive plans or were in the process of developing comprehensive plans. However, only 12 of those parishes had zoning ordinances. This suggests a change in planning momentum asked in research question one, in that parishes have an increased

awareness of the importance of planning preceding zoning, a sign of the influence that planning groups following the hurricanes have had on Louisiana communities.

6.2 Independent Variables Analysis - Factors Associated with Planning

6.2.1 Demographic Analysis

US Census data for 2010 was collected for Per Capita Income, Percent with College Degree, Percent Population Change, and Persons per Square Mile to analyze the parishes that completed the survey. For each data variable, those that had an increase in planning were compared to those that did not by using a difference of two means test (table 1).

Table 1: Difference of two means test to measure the demographic variables to a marked increase in planning.

	Mean Value		Diff. In Means	95% Conf Interval
	Incr. Planning	No Incr. Planning		
Per Capita Income (\$)	\$22,391	\$18,681	\$3,710	\$3671, \$3749
College Degree (%)	17.54	13.17	4.38	2.69, 6.05
Population Change (%)	5.94	-2.35	8.29	0.53, 16.05
Persons/Square Mile	298.12	146.78	151.34	-163.47, 466.15

Based on the results of the statistical test, previous research remains valid for per capita income, percent with a college degree, and percent population change, but not for persons per square mile. The variable of persons per square mile has a large degree of confidence, with the intervals lying to the positive and negative of the difference in means, which means that there is no difference between the mean values of an increase in planning and no increase in planning. The “urban phenomenon” model discussed by Lubell et al (2009) showed that larger cities are more likely to adopt smart growth principles. In this research, a large city was set at 92,000 persons or more. This isn’t to say that smaller cities or regions will not develop smart growth

principles, only that their transaction costs may be too high to implement new measures or they see less of a need for growth control mechanisms. However, Louisiana is a largely rural state, with only 5 cities and 14 parishes total exceeding 100,000 persons (Bureau, 2010). Many smaller parishes are now adopting comprehensive planning and other smart growth principles in Louisiana, and further examination of the survey data may determine other causes.

The mean values represented as an overall statistical analysis obviously don't represent every individual case and exceptions are found. Orleans Parish, following hurricane Katrina, saw a 29% decrease in population from the 2000 census to the 2010 census (see Appendix C) but still noted an increase in planning measures in the survey. This is most likely a result of the severe damage from Hurricane Katrina and the massive efforts that were undertaken as means to rebuild the city. Jefferson Parish did not note an increase in planning in the survey, but has one of the highest population densities of the measured parishes (in fact, had it not been included, the mean value for persons/square mile would have been much lower for the group that did not note an increase in planning). The parish is however developing a new comprehensive plan for 2012. The person completing the survey simply may have felt the comprehensive plan was in development for other reasons. Caldwell and East Feliciana Parishes, on the other hand, had very low density, a population loss, low per capita income and a low percentage of college graduates, but still noted an increase in planning measures. Further analysis of the survey responses will shed light on other factors that may have influenced the adoption of planning measures in these parishes.

6.2.2 Chi Square Analysis

Following the initial and demographic analyses, a Chi Square analysis was performed to uncover any other factors associated with increased planning measures since 2005. The

following were used as independent variables to test against the dependent variable of an increase in planning:

1. Level of damage during Hurricanes Katrina/Rita
2. Level of damage during Hurricanes Gustav/Ike
3. Level of other environmental damages
4. Involvement with Louisiana Speaks
5. Familiarity with Smart Growth
6. Familiarity with Comprehensive or Regional Planning
7. Familiarity with the Center for Planning Excellence
8. Familiarity with Louisiana Speaks
9. Familiarity with the Louisiana Recovery Authority
10. Familiarity with their Local Metropolitan Planning Organization
11. Familiarity with Louisiana's Comprehensive Master Plan for a Sustainable Coast
12. Familiarity with Funding Sources for Planning

Each likert scale variable was run against the categorical variable of Yes/No to an increase in planning (given a 0 or 1 value). The Chi Square value was then translated into a P-value using the appropriate degrees of freedom for each independent variable (table 2). Answers of “not sure” were not tabulated in the calculations. This did not sway the results of the analysis as there were very few “not sure” in the survey responses, but it does change the (n) for each variable.

Table 2: Example of chi square calculation tables.

Familiarity with Louisiana Speaks									
	Not Sure (1)	Not at all Familiar (2)	(3)	(4)	Moderately Familiar (5)	(6)	(7)	Very Familiar (8)	Total
Incr Planning									
Yes	0	1	2	3	3	2	1	5	17
No	0	7	1	5	1	0	2	1	17
Total		8	3	8	4	2	3	6	34

The chi square statistical analysis shows whether there is a difference between the two variables of an increase in planning and no increase in planning for each independent variable test. Low P-values under 0.10 indicate that there is a difference between an increase in planning and no increase in planning. Table 3 shows the result for each tabulation.

Table 3: Results of chi square analysis for 12 variables of survey.

Variable	n	d.f.	chi square	P-value
Katrina/Rita	32	4	3.83	0.429
Gustav/Ike	33	4	3.85	0.420
Other damage	33	4	2.57	0.632
LA Speaks Inv.	28	5	9.79	0.082
<u>Familiarity with:</u>				
Smart Growth	33	6	6.93	0.328
Comp Planning	34	6	9.53	0.146
CPEX	34	5	6.71	0.243
LA Speaks	34	6	11.83	0.066
LRA	34	6	4.36	0.628
MPO	31	5	11.48	0.043
CMPS	30	6	10.09	0.121
Funding	33	5	9.25	0.099

6.2.3 Hurricane and Other Damage Variables

The variables including damage from natural disasters returned very high P-values, meaning there was no difference between an increase in planning and no increase in planning for

damage. Katrina/Rita and Gustav/Ike returned values of .429 and .420 respectively, while “other” damage reported an even higher value of .632. This is not surprising if one considers the long history of hurricanes and natural disasters in the state. From the first well documented hurricane in 1722 which hit the Lesser Antilles, there have been many other hurricanes on record (106 tropical storms and hurricanes since 1850) (Roth, 2010). Louisiana residents have passed down through generations a cycle of rebuilding following natural disasters. Hurricanes are not a new phenomenon; there is very little reason for Louisiana residents to suddenly change their behavior simply because of the severity of a storm. They simply pick back up and attempt to continue life as it was before.

Secondly, as stated before, residents have little reason to completely relocate following a disaster, even if their home is located in a hazardous or vulnerable area. The National Flood Insurance Program all but encourages residents to remain in vulnerable areas, promising monetary protection and federal aid to continue to rebuild instead of relocate (Abromovitz, 2002). This coupled with a strong sense of community for many settled residents along the coast and a sense of “life as usual” for residents as they brace for summer storms, it is no surprise that the severity of damage alone will not spur a change of direction for these coastal communities.

6.2.4 Louisiana Speaks Variables

The rest of the variables look at involvement or knowledge in planning as it relates to an increase in planning measures. The most notable results are those that look at knowledge in or involvement with the Louisiana Speaks project. Involvement in Louisiana Speaks scored a P-value of 0.082 when statistically measured with an increase in planning measures, while knowledge in Louisiana Speaks scored a P-value of 0.066, both significant values. These low P-values of under 0.10 mean that there was a statistical difference between an increase in planning

and no increase in planning. These two variables are important when discussing the resiliency capabilities of these Louisiana communities following natural disasters. While these communities may view hurricane damage as a fairly usual occurrence, the outpouring of resources from the Louisiana Speaks project created a level of awareness rarely seen following previous disasters. While citizens may have never considered planning as a tool for hurricane preparation, the knowledge gained during the community meetings and public workshops was immeasurable.

The fact that knowledge in the Louisiana Speaks project measured significantly is a direct example of what an outside resource can provide in a resiliency movement to enhance the local knowledge. The members of Louisiana Speaks acted as the bridge between a growing necessity for regional planning and communities who were too used to rebuilding in the same fashion. They were able to bring in experts in the planning fields, reach lower populated communities, and provide a level of information that many of these communities would not have been able to discover alone. The Louisiana Speaks group used the momentum and energy created amidst the frenzy following Hurricanes Katrina and Rita to focus the communities toward fresh ideas in terms of rebuilding and renewing.

It is important to note, however, that involvement in Louisiana Speaks did not directly result in development of a comprehensive plan. The purpose of the project was not to develop individual plans for parishes, but to develop a recovery plan for all of south Louisiana. As part of the recovery process, the Parish Recovery Planning Tool (PRPT) was developed. This tool was meant to be an accessible website for government and citizens to be able to participate in the planning process alongside one another. Parishes in the Louisiana Speaks region identified the needs most important to them and the PRPT helped them to develop specific goals and projects

to meet those needs (Louisiana Recovery Authority, 2006). These projects fell under several different sectors: environmental management, housing and community development, economic and workforce development, public health and healthcare, transportation and infrastructure, education, human services, public safety, and flood protection and coastal restoration.

Comprehensive master planning is located in the housing and community development sector and outlines that the parish will “hire a Planning Consultant to prepare the master plan and accompanying ordinances” (Louisiana Recovery Authority, 2006). At no point did the Louisiana Speaks team physically compile comprehensive plans for a parish, but simply put it as a parish project in the recovery goals. In fact, only two of the 17 parishes (St. Charles and Tangipahoa) which marked an increase in planning measures had comprehensive planning as one of the action items in the PRPT (Louisiana Recovery Authority, 2006). The Louisiana Speaks project, however, did aid parishes in finding funding and available resources for completing many of the goals in the PRPT. This made hiring a planner and developing a comprehensive plan possible in many communities where it otherwise would be very difficult.

This is most likely why knowledge of funding sources also had a statistically significant value of 0.099. Many communities operate day to day on very small budgets that must be spread around an entire parish and there is seldom room in for an expensive comprehensive plan. However, there are funding sources that can aid parishes in developing these plans, and Louisiana Speaks without a doubt shared the knowledge necessary to seek these sources out.

It is important also to note that not all parishes that marked an increase in planning measures were involved in Louisiana Speaks. However, many parishes that marked “not at all involved” in Louisiana Speaks marked a higher score for their knowledge of the project itself. For all survey responses, there was an average of 4.3 in involvement with Louisiana Speaks, but

a 5.5 in knowledge of the same program. This shows the impact that the program had on all Louisiana parishes, whether they were part of the project or not. The momentum towards planning during this time was strong. This also can explain how rural parishes with low population densities and those with population losses still saw planning as an advantage for their community.

6.2.5 Other Planning Variables

Although the Louisiana Speaks team members were sharing knowledge about smart growth and the importance of comprehensive planning, such terms did not show as statistically significant in an increase of planning measures (with P-values of 0.328 and 0.146 respectively). This may be attributed to the specific respondents of the survey, or it may be simply that although the importance of planning was relayed through Louisiana Speaks, the specific jargon was not adopted by local communities. The same can also be said for the high P-values for knowledge of the Louisiana Recovery Authority (P=0.628) and for the Center for Planning Excellence (P=0.243). Local communities who were involved in the workshops and community planning strategies most likely were not versed in the political makeup of the Louisiana Speaks team and therefore were only familiar with those whom they interacted with during the process.

6.2.6 Metropolitan Planning Organization Variable

Metropolitan Planning Organizations (MPOs) are regional non-profit organizations that provide assistance and resources to parishes within their jurisdiction. Federal highway and transit statutes require a region to have an MPO in order to secure federal highway and transit funds (Association of Metropolitan Planning Associations, 2012). In addition to transportation planning, MPOs also aid parishes in other important sectors such as economic development,



Figure 8: Eight metropolitan planning organizations of Louisiana. From wwwprd.doa.louisiana.gov/icons/plandist.gif

building code enforcement, and environmental and land-use planning. Louisiana is divided into eight metropolitan areas (see figure 8). All Louisiana MPOs have transportation planning sectors and most have an economic development sector.

The MPO variable was included initially for the thought that parishes may not develop comprehensive plans if they could rely on their local MPO for any necessary regional planning, zoning, and building code enforcement. Therefore, an increase in knowledge in their MPO may lead to a decrease in their likelihood of adopting comprehensive planning. In contrast, the respondents' familiarity with their local Metropolitan Planning Organizations (MPO) scored the most significant, with a P-value of 0.043. Upon further examination into the purposes of each MPO, this high level of knowledge of the regional MPOs is most likely contributed to necessary transportation planning and economic development resources, especially since not every MPO has a land-use planning division. Economic development and transportation planning are both very important sectors of Louisiana economy and funding.

Those MPOs that do have planning divisions can act as invaluable resources to their respective parishes. In fact, on several occasions, the MPO has acted as the planning consultant contracted by the parish to compile the comprehensive plan. The South Central Planning and Development Commission has developed comprehensive parish plans for St James and Assumption Parishes while the Lafayette Consolidated Government has developed a comprehensive plan for Lafayette Parish. (Commission, 2012) (Government, 2012) Having a strong working relationship with an MPO can lead to further resources in planning and can provide a local planning consultant for regional comprehensive plans.

CHAPTER 7: CONCLUSION

Comprehensive planning in Louisiana has historically been slow in parish-level adoption. It has been concentrated on smaller scales such as city planning or neighborhood revitalizations. Planning in the past has been a reactionary process, responding to rapid population growth in the urban cores and surrounding communities in the state. However, there is a serious need for comprehensive planning across the state as populations expand into sensitive ecological systems and farmlands are threatened to be lost to suburban sprawl. With much of Louisiana as rural land, many parish level governments do not see the need for expensive and “elite” comprehensive planning tools when they see little benefit for their small town budgets, as some rural parishes may not even have basic planning tools in place..

Following the devastating hurricanes of 2005 and 2008, there is a clear shift in the adoption of comprehensive planning in Louisiana, and the survey was able to shed light on this transition. Communities across the state were shaken following so many natural disasters, and this was an opportunity for much needed change to take place. The Louisiana Speaks project used that window of opportunity to introduce new ideas and perspective into communities that would have otherwise continued on as usual and rebuilt the same way following another hurricane or disaster. The analysis of the survey showed this: that without the resource of the project, learning probably would not have taken place. However, we can see an increase in the number of plans adopted per year and comprehensive planning preceding zoning, both of which suggest a change in planning in the parishes.

In examining the second research question, we focused on the demographic variables traditionally associated with planning. Higher median incomes, higher rates of population change, and higher levels of education are still associated with planning in Louisiana, but

parishes are seeing an increase in rural communities adopting comprehensive planning as well, as the demographic variable for density did not show significance. Comprehensive planning, congruent with urban planning, has often left rural communities with the impression that planning should be left to the city centers and that it is not needed for farmland and low density towns. Following the hurricanes of 2005 and 2008 and the Louisiana Speaks project, those rural parishes may now understand better that planning can occur in rural Louisiana as well. Many parishes with very low density, such as East Feliciana, a historically low income parish with only 44 persons per square mile, saw an increase in planning. These parishes may see the intense sprawl developing around the metropolitan areas and view planning as a tool to preserve their rural lifestyle. In fact, in the open comments section of the survey, West Feliciana Parish made the following statement: “The intent of the West Feliciana Parish comprehensive Plan is to capture the vision of the parish's citizens. The vision is a future that *preserves the rural character of the parish*, while enhancing the quality of life and planning for future growth,” (emphasis added). Although some parishes still do not understand using comprehensive planning as a tool for preservation and believe they are still too rural to adopt planning (see Appendix B for open comments of the survey), this is an important shift in a traditionally urban phenomenon and will hopefully continue to spread throughout rural Louisiana. This transition shows that preservation of community may be a factor that influences the adoption of planning in Louisiana parishes, a changing trend from urban demographic influences detected previously.

Also, the results for hurricane damage showed that even though parishes increased planning, it was not associated with the level of damage incurred, but associated with the level of involvement and/or knowledge of Louisiana Speaks. This indicates that learning occurred and is

still occurring, building the capacity to adapt in the face of changing times, and therefore increasing resilience to future threats.

Although the Louisiana Speaks project occurred in the 35 coastal parishes of Louisiana, it still had an impact on the entire state. The survey revealed that the knowledge of Louisiana Speaks was not concentrated only to those that were part of the 35 participating parishes, but included surrounding parishes as well. These parishes were able to learn about the importance of comprehensive planning and resilience without being directly involved. This shows an impact across the state that continues to grow even seven years after Hurricanes Katrina and Rita, with multiple parishes developing plans every year and a definite increase in the amount of planning compared to that prior to 2005.

Another observation taken from the research and survey was the intimate collaboration between parishes and metropolitan planning organizations. These regional bodies have the capacity to serve as future knowledge sharers and leaders and to aid parishes in future smart growth decisions. The necessity of these MPOs for federal highway funding combined with the opportunity for regional planning divisions allows great potential for large scale planning. Although state-wide planning is only in theory, regional planning is feasible because of the work of these organizations. The MPOs can also provide aid on the parish level, increasing the availability of adopting comprehensive planning in the future.

Finally, in regards to the third research question, one of the most interesting developments evolving from comprehensive planning in Louisiana is the emergence of the term “resiliency” in everyday vernacular. Beginning in workshops and town-hall meetings during Louisiana Speaks as a way to frame planning around rebuilding and protecting communities

from natural disasters, the term has come to play a part in restructuring how parishes and communities understand the broad applications of planning. From Louisiana Speaks to the Comprehensive Resiliency Pilot Program following Hurricanes Gustav and Ike, resiliency is a term no longer used largely by theory practitioners. Comprehensive resiliency plans and programs are developing as a means to protect, preserve, and enhance quality of life throughout the state and common use of the term shows a shift in the attitudes towards planning throughout the state.

In closing, the fast initiative of planners and governmental leaders immediately following Hurricanes Katrina and Rita have shaped the way communities across Louisiana view comprehensive planning. The research presented here shows that this was not a high energy, short lived movement, but one that has had lasting effects several years later. This shows a measurable increase in planning with more comprehensive plans developing in the seven years following Hurricanes Katrina and Rita than all previous years combined. Attitudes appear to have shifted as comprehensive planning has focused more on vulnerability and protection, and parishes are viewing planning as a means to preserve their communities and plan for the future, instead of responding to traditionally urban demographic factors. If this trend persists, parishes will continue to develop, implement, and update comprehensive plans which will help them to be better prepared as natural disasters inevitably arise throughout the future.

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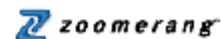
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APPENDIX A: SURVEY MATERIALS

Survey Consent

1. Performance Site: Louisiana State University and Agricultural and Mechanical College
2. Investigators: The following investigator is available for questions about this study at any time: Betsy Paille, mpail11@lsu.edu
3. Purpose of this study: The purpose of this research project is to determine potential factors that would contribute to the adoption of comprehensive planning in parishes throughout Louisiana.
4. Subject Inclusion: Parish Leaders in Louisiana
5. Number of Subjects: 64
6. Study Procedures: A governmental leader from each parish will be asked to complete a brief, 9 question survey.
7. Benefits: The survey may yield valuable information regarding planning in Louisiana.
8. Risks: There are no risks associated with this survey.
9. Right to Refuse: Subjects may choose not to participate or to withdraw from the study at any time without penalty or loss of any benefit to which they might otherwise be entitled.
10. Privacy: Results of this study may be published, but no respondent names or identifying information will be included in the publication. Subject identity will remain confidential unless disclosure is required by law.
11. Consent: You may direct additional questions regarding study specifics to me or my major professor, Margaret Ream, Associate Professor, Department of Environmental Sciences, Louisiana State University, (225) 578-4299, mreams@lsu.edu. If you have questions about subjects' rights or other concerns, you may contact Robert C. Mathews, Institutional Review Board, (225) 578-8692, irb@lsu.edu, www.lsu.edu/irb.

By completing this survey you consent to the above information. Thank you for your participation.



Perceptions of Planning in Louisiana Communities

Created: October 21 2011, 8:08 AM
 Last Modified: December 16 2011, 10:00 PM
 Design Theme: Blue Horizon
 Language: English
 Button Options: Custom: Start Survey: "Start Survey!" Submit: "Submit"
 Disable Browser "Back" Button: False

Perceptions of Planning in Louisiana Communities

Page 1 - Question 1 - Open Ended - Comments Box

Please enter the name of your parish:

Page 1 - Question 2 - Rating Scale - Matrix

A parish comprehensive plan, for the purposes of this survey, is considered a parish-wide plan that addresses growth, land use, transportation, economic development, and/or quality of life in your parish. A comprehensive plan may also be known as a regional plan or master plan. For the purposes of this study, a comprehensive plan should include more than zoning.

	Yes (1)	No (2)	Not Sure (3)	In Progress (4)
Does your parish currently have a comprehensive plan or parish-wide master plan?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does your parish currently have a planning commission?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does your parish currently have zoning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you received any funding or grants to develop or implement a comprehensive plan?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page 1 - Question 3 - Open Ended - Comments Box

If your parish has a comprehensive plan, when was the last time it was updated? (Please enter a year or N/A if you do not have a comprehensive plan)

Page 1 - Question 4 - Rating Scale - Matrix

Below is a list of potential issues that can arise during the comprehensive planning process. Please consider each item and how it may have influenced your decision-making. (If you do not have a comprehensive plan, please consider which items may be preventing you from developing one.) For example: Strong citizen support for a plan would be an incentive. Lack of funding for implementing a plan would be a disincentive.

A Major
Disincent

Neither

A Major
Incentive

	vs						
Citizen support for a plan	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
Government support for a plan	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
Funding for the development of a plan	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
Funding for implementation of a plan	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
A full time planning staff or planning department	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
Population growth in your parish	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
Protection of citizens to disasters (hurricanes, flooding, fires, etc)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7
Importance of environmental protection or restoration	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7

Page 1 - Question 5 - Rating Scale - Matrix

Did your parish suffer damage from any of the following events?

	Not Sure	No Damage	Little Damage	Moderate Damage	Severe Damage	Catastrophic Damage
2005 Hurricanes Katrina and/or Rita?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
2008 Hurricanes Gustav and/or Ike?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
Any other type of damage related to flooding, severe storms, or fires since 2005?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6

Page 1 - Question 6 - Rating Scale - Matrix

Following the 2005 Hurricane season, how involved were you or your parish with the Louisiana Speaks recovery efforts?

Not Sure	Not at all Involved	label	label	Moderately Involved	label	label	Very Involved
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8

Page 1 - Question 7 - Rating Scale - Matrix

Below is a list of terms. Please mark how familiar you are with each of the following:

	Not Sure	Not at all Familiar	label	label	Moderately Familiar	label	label	Very Familiar
Smart Growth	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Comprehensive or Regional Planning	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Center for Planning Excellence	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Louisiana Speaks	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Louisiana Recovery Authority	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Your local Metropolitan Planning Organization	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Louisiana's Comprehensive Master Plan for a Sustainable Coast	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8
Funding Sources for Planning	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6	<input type="radio"/> 7	<input type="radio"/> 8

Page 1 - Question 8 - Rating Scale - Matrix

Please choose one answer for each of the following:

	Yes (1)	No (2)	Not Sure (3)	In Progress (4)
Have you adopted or amended a comprehensive plan as a direct result of hurricanes or other environmental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

disasters since 2005?

Have you increased staff directly responsible for planning since 2005?

☐☐☐☐

Have you increased your budget for planning since 2005?

☐☐☐☐

Page 1 - Question 9 - Choice - One Answer (Bullets)

Please choose the position which most closely matches yours in parish government:

- ☐ Planning Staff or Director
- ☐ Parish President
- ☐ Administrative Support
- ☐ Permitting Staff or Director
- ☐ Public Works Staff or Director
- ☐ Parish Manager
- ☐ Other, please specify

Page 1 - Question 10 - Open Ended - Comments Box

Thank you so much for your time. Are there any comments you would like to add?

Thank You Page

Standard

Screen Out Page

Standard

Over Quota Page

Standard

Survey Closed Page

Standard



Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/ projects using living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-E listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at <http://www.lsu.edu/humansubjectscommittee.html>



Institutional Review Board
Dr. Robert Mathews, Chair
131 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.2692
F: 225.578.6792
rbg@lsu.edu
lsu.edu/irb

A Complete Application Includes All of the following:

(A) Two copies of this completed form and two copies of part B thru E.

(B) A brief project description adequate to evaluate risks to subjects and to explain your responses to Parts 1&2.

(C) Copies of all instruments to be used.

*If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material

(D) The consent form that you will use in the study (see part 3 for more information.)

(E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are

involved with testing or handling data, unless already on file with the IRB. Training link: <http://prg.mhtraining.com/users/login.php>

(F) IRB Security of Data Agreement: <http://www.lsu.edu/irb/Security%20of%20Data.pdf>

1) Principal Investigator: Mary B Paillé

Rank: Graduate Student

Dept: Environmental Sciences

Ph: 225 578 1151

E-mail: mpaille@lsu.edu

2) Co Investigator(s): please include department, rank, phone and e-mail for each

3) Project Title: Perceptions of Planning Among Parish Governmental Leaders in Louisiana

Study Exempted by:
Dr. Robert C. Mathews, Chairman
Institutional Review Board
Louisiana State University
203 David Boyd Hall
225-578-2692, www.lsu.edu/irb
Exemption Expires: 10/12/11

4) Proposal? (yes or no) NO

If Yes, LSU Proposal Number

Also, if YES, other

☐ This application completely matches the scope of work in the grant

OR

☐ More IRB Applications will be filed later

5) Subject pool (e.g. Psychology students): Parish Planners

*Circle any "vulnerable populations" to be used: (children <18; the mentally impaired, pregnant women, the aged, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature: Mary B Paillé

Date: 10/12/11

(no per signatures)

** I certify my responses are accurate and complete. If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Screening Committee Action: Exempted <input checked="" type="checkbox"/> Not Exempted <input type="checkbox"/>		Category/Paragraph: 2
Reviewer: Mathews	Signature: Robert Mathews	Date: 10/12/11

APPENDIX B: SELECT SURVEY RESULTS

Year of Comprehensive Plan Adoption – compiled by author from various sources.

Parish	Year Adopted
Plaquemines	1975
St. Charles	1990
East Baton Rouge	1992
Lafayette	2000
Bossier	2002
St. Mary	2002
Jefferson	2003
St. John	2003
Terrebonne	2003
Ascension	2004
Avoyelles	2005
St. Tammany	2005
Iberville	2006
St. Bernard	2006
Calcasieu	2007
Claiborne	2007
Iberia	2007
Pointe Coupee	2007
Assumption	2008
Tangipahoa	2008
Washington	2008
West Feliciana	2008
Orleans	2010
St. Helena	2010
East Feliciana	2011
Grant	2011
St. James	2011
Tensas	2011
Vernon	2011
West Baton Rouge	2011
Lafourche	2013
Livingston	2013

Parish	Year Adopted
St. Martin	2013
Vermilion	2013
Acadia	N/A
Allen	N/A
Beauregard	N/A
Bienville	N/A
Caddo	N/A
Caldwell	N/A
Cameron	N/A
Catahoula	N/A
Concordia	N/A
DeSoto	N/A
East Carroll	N/A
Evangeline	N/A
Franklin	N/A
Jackson	N/A
Jefferson Davis	N/A
La Salle	N/A
Lincoln	N/A
Madison	N/A
Morehouse	N/A
Natchitoches	N/A
Ouachita	N/A
Rapides	N/A
Red River	N/A
Richland	N/A
Sabine	N/A
St. Landry	N/A
Union	N/A
Webster	N/A
West Carroll	N/A
Winn	N/A

*Note: 2013 refers to the Parish having a plan in progress or recently releasing an RFQ for the development of a plan.

Tabulated Survey Results

Mary Paille, Basic Member
[Support/Help](#) | [My Account](#) | [Log Out](#)

[Home](#)
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[My Surveys](#)
[My Polls](#)
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Perceptions of Planning in Louisiana Communities

[Edit & Review](#)
[Invite & Deploy](#)
[Analyze Results](#)

[Results](#)
[» Individual Responses](#)
[» Raw Data Export](#)

Results Overview
Filter: No filter applied

Report

[Results Overview](#)

[New Cross Tab Report](#)

Comparison

[New Comparison Rpt](#)

Filter

[New Filter](#)

Statistics

[Show Statistics](#)

Responses

☒ Completes

☐ Partial

☐ Screen Outs

☐ Over Quota

[APPLY](#)

Perceptions of Planning in Louisiana Communities

Survey Status: Closed **Launched:** 11/2/2011 1:36 PM **Closed:** 12/16/2011 10:01 PM

Email Invites	Visits	Partial	Screen Outs	Over Quota	Completes
70	69	0 / 0	0 / 0	0 / 0	34 / 35

1. Please enter the name of your parish:

[View 28 Responses](#)

2. A parish comprehensive plan, for the purposes of this survey, is considered a parish-wide plan that addresses growth, land use, transportation, economic development, and/or quality of life in your parish. A comprehensive plan may also be known as a regional plan or master plan. For the purposes of this study, a comprehensive plan should include more than zoning.

	Yes	No	Not Sure	In Progress
	1	2	3	4
Does your parish currently have a comprehensive plan or parish-wide master plan?	18 53%	12 35%	1 3%	3 9%
Does your parish currently have a planning commission?	22 65%	12 35%	0 0%	0 0%
Does your parish currently have zoning?	15 44%	19 56%	0 0%	0 0%
Have you received any funding or grants to develop or implement a comprehensive plan?	18 53%	13 38%	2 6%	1 3%

3. If your parish has a comprehensive plan, when was the last time it was updated? (Please enter a year or N/A if you do not have a comprehensive plan)

[View 32 Responses](#)

4. Below is a list of potential issues that can arise during the comprehensive planning process. Please consider each item and how it may have influenced your decision-making. (If you do not have a comprehensive plan, please consider which items may be preventing you from developing one.) For example: Strong citizen support for a plan would be an incentive. Lack of funding for implementing a plan would be a disincentive.

	A Major Disincentive	A Minor Disincentive	Neither	A Minor Incentive	A Major Incentive		
	1	2	3	4	5	6	7
Citizen support for a plan	4 13%	3 10%	2 6%	5 16%	2 6%	3 10%	12 39%
Government support for a plan	2 6%	2 6%	2 6%	4 12%	3 9%	4 12%	15 47%
Funding for the							

development of a plan	6 19%	1 3%	4 12%	2 6%	1 3%	7 22%	11 34%
Funding for implementation of a plan	6 19%	2 6%	2 6%	3 9%	4 12%	5 16%	10 31%
A full time planning staff or planning department	5 16%	3 9%	5 16%	4 12%	4 12%	2 6%	9 28%
Population growth in your parish	5 16%	1 3%	4 12%	4 12%	6 19%	5 16%	7 22%
Protection of citizens to disasters (hurricanes, flooding, fires, etc)	4 12%	0 0%	1 3%	8 25%	4 12%	7 22%	8 25%
Importance of environmental protection or restoration	3 9%	0 0%	3 9%	8 25%	3 9%	8 25%	7 22%

5. Did your parish suffer damage from any of the following events?

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Not Sure	No Damage	Little Damage	Moderate Damage	Severe Damage	Catastrophic Damage
	1	2	3	4	5	6
2005 Hurricanes Katrina and/or Rita?	1 3%	2 6%	12 36%	8 24%	9 27%	1 3%
2008 Hurricanes Gustav and/or Ike?	0 0%	0 0%	10 30%	12 36%	11 33%	0 0%
Any other type of damage related to flooding, severe storms, or fires since 2005?	0 0%	5 15%	14 42%	9 27%	4 12%	1 3%

6. Following the 2005 Hurricane season, how involved were you or your parish with the Louisiana Speaks recovery efforts?

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Not Sure	Not at all Involved			Moderately Involved			Very Involved
	0	1	2	3	4	5	6	7
	6 18%	12 35%	4 12%	0 0%	5 15%	3 9%	1 3%	3 9%

7. Below is a list of terms. Please mark how familiar you are with each of the following:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Not Sure	Not at all Familiar			Moderately Familiar			Very Familiar
	0	1	2	3	4	5	6	7
Smart Growth	0 0%	8 24%	2 6%	1 3%	5 15%	1 3%	4 12%	12 36%
Comprehensive or Regional Planning	0 0%	5 15%	2 6%	2 6%	3 9%	1 3%	5 15%	16 47%
Center for Planning Excellence	0 0%	8 24%	2 6%	5 15%	1 3%	0 0%	3 9%	15 44%
Louisiana Speaks	1 3%	7 21%	3 9%	8 24%	4 12%	2 6%	3 9%	6 18%
Louisiana Recovery Authority	0 0%	1 3%	2 6%	2 6%	6 18%	5 15%	5 15%	13 38%
Your local Metropolitan Planning	3 9%	6 18%	0 0%	2 6%	1 3%	2 6%	4 12%	16 47%

Organization									
Louisiana's Comprehensive Master Plan for a Sustainable Coast	4 12%	11 32%	2 6%	2 6%	4 12%	5 15%	2 6%	4 12%	
Funding Sources for Planning	1 3%	10 29%	4 12%	5 15%	0 0%	5 15%	6 18%	3 9%	

8. Please choose one answer for each of the following:

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Yes	No	Not Sure	In Progress
	1	2	3	4
Have you adopted or amended a comprehensive plan as a direct result of hurricanes or other environmental disasters since 2005?	7 21%	22 65%	2 6%	3 9%
Have you increased staff directly responsible for planning since 2005?	10 29%	23 68%	0 0%	1 3%
Have you increased your budget for planning since 2005?	12 35%	19 56%	3 9%	0 0%

9. Please choose the position which most closely matches yours in parish government:

Planning Staff or Director		12	35%
Parish President		0	0%
Administrative Support		5	15%
Permitting Staff or Director		2	6%
Public Works Staff or Director		2	6%
Parish Manager		6	18%
Other, please specify View Responses		7	21%
Total		34	100%

10. Thank you so much for your time. Are there any comments you would like to add?

[View 9 Responses](#)

Open Ended Comments From the Survey (unedited)

1. The intend of the West Feliciana Parish comprehensive Plan is to capture the vision of the parish's citizens. The vision is a future that preserves the rural character of the parish, while enhancing the quality of life and planning for future growth.
2. St James parish had no planning or permitting proir to 2005
3. Terrebonne Parish was recently awarded as a CRS 6 Community by the NFIP which is tied for the best CRS rating in the State by the Federal Flood Insurance Program and was ranked very high on a recent Coastal Resiliency Index sponsored by LSU Sea Grant. Reseiliency Planning is moving forward in Terrebonne.
4. The land use plan has been in progression since 2003. The final phase four is set to be finished in 2012. The process was delayed after katrian and began again in 2008... We currently are using a grant to finish and also have a resiliency grant in process
5. Protection of citizens from hazards falls under our separate Hazard Mitigation Plan, which is maintained by our Office of Homeland Security & Emergency Preparedness. Also, you might want to research a paper written by Lynn Maloney-Mujica when she was a graduate student. She researched the state of planning in Louisiana. Not sure which university...not sure of her name at the time, but she currently works for Arcadis in Baton Rouge. Good luck!
6. We are a small, poor, rural parish with a total office staff of 6 people, We do building permits to conform to state law on building codes and that is about it.
7. Our Parish does have a Hazard Mitigation Plan.

APPENDIX C: DEMOGRAPHIC VARIABLES

Parish	Per cap. income	% college	% Pop Change	persons / sqmi	Planning Incr.
Allen Parish	\$17,108	9.1	1.3	33.8	0
Ascension	\$26,888	21.9	39.9	369.7	1
Bossier	\$25,630	21.6	19	139.3	1
Caddo	\$22,594	22	1.1	290.2	0
Caldwell	\$19,888	11.7	-4.1	19.1	1
Catahoula	\$17,166	10.5	-4.7	14.7	0
Claiborne	\$16,925	11.3	2	22.8	0
East Baton Rouge	\$26,260	32.9	6.6	966.6	1
East Feliciana	\$18,376	12.4	-5.1	44.7	1
Iberia	\$20,112	13.4	0	127.6	1
Iberville	\$19,379	11	0.2	54	0
Jefferson	\$25,842	23.2	-5	1463.1	0
Jefferson Davis	\$20,487	11.6	0.5	48.5	0
Lafourche	\$22,898	14.3	7.1	90.2	0
Morehouse	\$15,713	11.1	-9.8	35.2	0
Orleans	\$24,929	31.6	-29.1	2029.4	1
Pointe Coupee	\$21,533	15.3	0.2	40.9	1
St Charles	\$25,728	19.7	9.8	189.1	1
St James	\$22,509	12.4	4.2	91.5	1
St Martin	\$20,687	11.6	7.4	70.7	1
St. John the Baptist	\$20,842	15.8	6.7	215.5	1
St. Landry	\$17,839	12.5	-4.9	90.3	0
St. Mary	\$20,057	10.4	2.1	98.4	1
Tangipahoa	\$19,788	19.7	20.4	153	1
Tensas	\$15,218	12.9	-20.6	8.7	0
Terrebonne	\$22,931	13.8	7	90.8	1
Vernon	\$20,191	15.6	-0.4	39.4	0
Washington	\$17,120	11.8	7.4	70.4	0
West Baton Rouge	\$22,101	16.5	10.1	123.6	1
West Carroll	\$16,462	9.8	-5.8	32.3	0
West Feliciana	\$18,118	12.8	3.4	38.8	0
Winn	\$15,833	11.2	-9.4	16.1	0

APPENDIX D: COMPREHENSIVE RESILIENCY PILOT PROGRAM: GRANT AWARDS

Comprehensive Resiliency Pilot Program: Grant Awards

Applicant Name	Project Name	Project Description	Grant Amount	
Greater New Orleans, Inc.	Comprehensive, Integrated Water Management Strategy for the New Orleans Region	Comprehensive, integrated water management plan and pilot projects for Orleans, Jefferson and St. Bernard parishes.	\$2,000,000	
City of Alexandria	City of Alexandria Community Resiliency Program	An update of Alexandria's 18-year-old Comprehensive Development Strategy and the creation of a Unified Development Code	\$567,000	
Iberville Parish	Development Code Revision/Zoning Ordinance and Related Support Activities	An overhaul of Iberville Parish's development code and adoption of parish-wide zoning. This will include a comprehensive revision of parish development code and drafting of parish-wide zoning ordinance; stakeholder/community outreach; and development code implementation training	\$500,295	
Center for Planning Excellence	Comprehensive Plans and Louisiana Land Use Toolkit Implementation in Two Pilot Coastal Communities: Lafourche Parish and Town of Jean Lafitte	Complete two Comprehensive Plans and to tailor the Louisiana Land Use Toolkit to one pilot parish, Lafourche Parish, and one pilot town, Jean Lafitte	\$490,000	
St. Tammany Parish	Advanced Planning Focus Area Program	Create a development plan for St. Tammany Parish. The planning is to be done by focus area, of which there are nine. CRP will fund the initial three focus areas, which involve developing plans that encourage and promote well-planned residential and economic development activities in those areas that are unlikely to be impacted by storm surge, rainfall or riverine flooding	\$386,220	
City of Lafayette	Model Community Watershed Development	Develop alternative approaches to flood protection that balance both the management of growth impacts on watersheds along with investments to minimize impacts of flooding on specific neighborhood and business areas.	\$381,608	
SWLA Economic Development Alliance	Housing Market Study and Strategic Plan	A comprehensive housing study and strategic plan for the five parishes of Allen, Beauregard, Calcasieu, Cameron, and Jefferson Davis	\$380,000	
City of Monroe	Comprehensive Zoning Ordinance	Update the city's 50-year old zoning and subdivision ordinances	\$322,500	
City of Central	Master Plan Completion and Implementation Tools	Development of Master Plan implementation strategies including: integration of floodplain management plan and land use plan/development code; development of code pattern book/design guidelines; city center implementation strategies; community outreach/education	\$320,125	

Comprehensive Resiliency Pilot Program: Grant Awards

Applicant Name	Project Name	Project Description	Grant Amount	
St Bernard Parish	Integrated Water Resource Management for Increased Resilience: Linking the Urban Environment to the Natural Ecosystem	Development of a water management plan that includes a series of land use and zoning recommendations, project development scenarios, a financial strategy and potential institutional approaches to implement plan recommendations.	\$305,400	
Vermilion Parish	Vermilion Parish Comprehensive Plan	Development of a Comprehensive Land Use Plan	\$300,000	
City of Slidell	Slidell Zoning Ordinance Development and Code Enforcement Project	An update of the Unified Development Code, including the Comprehensive Zoning Ordinance and other ordinances related to planning and development.	\$261,189	
East Feliciana Parish	East Feliciana Parish Master Plan	Development of a Master plan	\$250,000	
City of Kenner	Comprehensive Resiliency: A cooperative partnership between the City of Kenner and the University of New Orleans	Expansion of existing Land Use Plan into a Comprehensive Plan that will address a range of important elements to drive future land development and a revision of the City's existing Zoning and Subdivision Ordinances	\$238,125	
City of Scott	Scott Resiliency Plan	Development of a Comprehensive Land Use Plan, evaluation of current ordinances and development of new ordinances that complement Master Plan.	\$237,500	
Terrebonne Parish Consolidated Government	Planning and Enforcement Enhancement Projects	The third phase of the Houma-Terrebonne Regional Planning Commission Comprehensive Plan update process.	\$222,200	
City of Hammond	Operational Upgrades for Community Development within Building Department	Development of updated zoning and subdivision ordinances	\$216,000	
City of New Orleans	Main Street Resiliency Plan	Develop a plan to promote investment and redevelopment in resilient locations by: creating a platform for individual Main Street organizations to better share experiences and learn from each other; forcing a two-way learning channel between grassroots Main Street organizations and city planners to inform a strategy to target future public investment; and developing a model that can be extended to additional corridors in the future.	\$187,500	
City of Breaux Bridge	Breaux Bridge Comprehensive Long-Range Resiliency Plan	Development of long-range development plan	\$184,000	
Northshore Community Foundation	Old Mandeville Town Center Resiliency Plan	Create a highly detailed "specific area plan" for the Mandeville Town Center, one that is resilient and on higher ground.	\$177,525	

Comprehensive Resiliency Pilot Program: Grant Awards

Applicant Name	Project Name	Project Description	Grant Amount	
St John the Baptist Parish	Creating Resiliency in the St John the Baptist Parish Development Management Program	A rewrite of the existing zoning ordinance and subdivision regulations so that they conform to the comprehensive plan goals and policies as well as focusing on providing legal mechanisms to make sure future development is discouraged in areas identified as hazard or storm related impact zones	\$174,326	
Global Green, Inc.	Economic Development and Land Use Strategy for Coastal Wetland Owners	Development of a plan to market Louisiana's wetlands in existing and emerging voluntary carbon offset/ecological value marketplaces to facilitate emerging revenue opportunities, enhance local and national public education and support coastal protection and restoration	\$150,080	
St. Mary Parish	St Mary Parish Zoning Update and Unified Development Code	An update and expansion of the current City Zoning Ordinance and the development of a Unified Development Code	\$150,000	
City of Morgan City	Morgan City Zoning Update and Unified Development Code	An update and expansion of the current City Zoning Ordinance and the development of a Unified Development Code	\$130,000	
City of Walker	Walker Area Sustainability Plan	The updating and amending of the Walker Zoning and Subdivision ordinances, the development of a Land Use Plan, improved permitting review within wetlands and floodzones, an improved site plan review checklist to be used by the City, and the development of a set of review and approval standards for the design and approval of public improvements	\$95,000	
Town of Livingston	Comprehensive Growth and Floodplain Management Plan	A comprehensive growth and floodplain management plan to guide capital improvements and investments in infrastructure and services in growth areas, eliminate or reduce flood losses and protect the natural and beneficial functions of the floodplain.	\$73,050	
Town of Church Point	Town of Church Point Comprehensive Long-Range Resiliency Plan	Development of Comprehensive Land Use Plan	\$62,720	
City of Pineville	Unified Development Ordinance Redevelopment	Development of a new Unified Development Ordinance	\$61,525	
Port of New Orleans	Port of New Orleans Design Guidelines Manual	Establishment of standards and a reference to all applicable codes and standards in design of port infrastructure and facilities, for both new construction and rehabilitation or modification.	\$25,000	
TOTAL AWARDED:			\$8,848,888	

VITA

Mary Bordelon Paille, who has gone by Betsy since day one, was born in Baton Rouge, Louisiana and calls Ascension Parish home. She grew up enjoying music and an appreciation for nature. She played several musical instruments and sang throughout her childhood and teenage years. However, when arriving to college she settled on the appreciation for nature she had cultivated as a young child and entered the Landscape Architecture program at LSU. Five years later she graduated cum laude and began her pursuit in the field.

After three years with professional firms, Betsy decided to focus her interests more toward the ecological and environmental side, instead of continuing with construction documents and drawings. She then spoke with Dr. Margaret Reams and soon after entered the Department of Environmental Science in the School of the Coast and Environment at LSU to study environmental planning and resiliency under her. She emerged herself in the research and has thoroughly enjoyed learning the science aspects of many of the topics she had been introduced to in Landscape Architecture.

Betsy currently resides in Baton Rouge with her husband of almost six years and her four cats whom she adores. While she is not writing her thesis, she enjoys vegetable gardening, small home construction projects, and reading. Betsy looks forward to a busy future after graduation, as her and her husband will be expanding their family with twins in the fall.